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DTE Energy

10 CFR 50.73

November 5, 2012
NRC-12-0074

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Licensee Event Report (LER) No. 2012-005

Pursuant to 10 CFR 50.73(a)(2)(iv)(A), Detroit Edison is submitting the enclosed LER No. 2012-005, Reactor Scram Due to Loss of 120kV Power.

No commitments are being made in this LER.

Should you have any questions or require additional information, please contact Mr. Zachary W. Rad of my staff at (734) 586-5076.

Sincerely,

Enclosure

cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 4, Region III
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: No. 3150-0104 Expires 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE

Reactor Scram Due to Loss of 120 kV Power

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	14	2012	2012	- 005 -	00	11	05	2012		05000
									FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE

1

10. POWER LEVEL

68 Percent

11. THIS REPORT SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Fermi 2 / Robert J. Salmon – Supervisor, Nuclear Compliance	(734) 586 - 4273

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	FC	LAR	C634	Y					

14. SUPPLEMENTAL REPORT EXPECTED

■ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

At approximately 1603 EDT, a fault occurred on the 13.2 kV side of 120 kV Transformer 1. The fault caused the isolation of Bus 101, and a loss of power to Transformer 64, Division I emergency safety system busses 64B and 64C, balance of plant bus 64A, the center condenser pump, center heater feed pump and both north and center heater drains pumps. The loss of the pumps resulted in a trip of the operating north reactor feed pump. Reactor water level lowered as a result of the loss of feedwater, and the unit automatically scrammed on low reactor water level 3 as designed. All control rods fully inserted, and the lowest reactor water level reached was approximately 96 inches above top of active fuel. Division I Emergency Diesel Generators, EDG-11 and EDG-12, automatically started and loaded Division I buses. The High Pressure Coolant Injection and Reactor Core Isolation Cooling systems automatically started as designed on low reactor water level 2 and restored reactor water level which was then maintained using the Condensate/Feed and Control Rod Drive systems. All isolations and actuations occurred as expected. The cause of the trip was determined to be animal intrusion that initiated a phase to ground fault at the Z-phase surge arrestor on the secondary side of Transformer 1. The potentially affected equipment was inspected and tested and the surge arrestor and associated jumpers were replaced prior to restart.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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NARRATIVE

Initial Plant Conditions:

Mode 1
Reactor Power 68 percent

Description of the Event

At approximately 1603 EDT, a fault occurred on the Z-phase of the 13.2 kV side of Transformer 1 in the 120 kV switchyard [FK]. The fault caused a transformer differential relay trip that isolated Bus 101 and resulted in a loss of power to Transformer 64, Division I emergency safety system busses 64B and 64C [EB] and balance of plant (BOP) bus 64A [EA]. The loss of BOP Bus 64A caused the loss of the center condenser pump, center heater feed pump and both north and center heater drains pumps. The loss of these pumps resulted in a trip of the operating north reactor feed pump [SJ]. Reactor water level lowered as a result of the loss of feedwater, and the unit automatically scrammed on low reactor water level 3 as designed. All control rods [JD] fully inserted, and the lowest reactor water level reached was approximately 96 inches above top of active fuel. Division I Emergency Diesel Generators (EDGs) [EK], EDG-11 and EDG-12, automatically started and loaded Division I buses. The High Pressure Coolant Injection (HPCI) [BJ] and Reactor Core Isolation Cooling (RCIC) [BN] systems automatically started as designed on low reactor water level 2 and restored reactor water level. Reactor water level increased until it reached Level 8 and the HPCI & RCIC systems automatically tripped as designed. Reactor operators subsequently maintained reactor water level in the normal level band using the Condensate/Feed and Control Rod Drive (CRD) systems. Reactor pressure was controlled using the main turbine bypass system to the main condenser [SJ]. The maximum pressure measured was approximately 986 psig and no Safety Relief Valves actuated. All isolations and actuations for reactor water levels 3 and 2 occurred as expected. Reactor cool down was controlled within Technical Specification and administrative limits.

At the time of the scram, all Emergency Core Cooling (ECCS) and Emergency Diesel Generators were operable with the exception of EDG-11 which was available but not Operable due to ventilation equipment maintenance work. No other safety related equipment was out of service. EDG-11 and EDG-12 performed all of their functions and provided power to the Division I AC buses. Temperatures were monitored in the room containing EDG-11 and the room did not approach any temperature limits.

Significant Safety Consequences and Implications

This event posed no significant safety implications because the reactor protection and safety related systems functioned as designed following the automatic reactor trip. Important safety-related and non-safety related equipment performed as discussed in the description of the event, and plant response was as expected. There was no increase in reactor pressure, and the reactor core was adequately covered and cooled throughout the event. Therefore, the health and safety of the public were not affected by this event.

This event is being reported under 10 CFR 50.73(a)(2)(iv)(A), as an event or condition that resulted in the automatic actuation of an emergency core cooling system at power as a result of a valid signal, and for the

actuation of the Reactor Protection System and a reactor scram. A 4-hour non-emergency notification was made to the NRC Operations Center at 1927 EDT on September 14, 2012 (EN 48309) in accordance with 10 CFR 50.72(b)(2)(iv)(A) for any event that results in ECCS discharge into the reactor coolant system as a result of a valid signal and 10CFR50.72(b)(2)(iv)(B), any event that results in actuation of the reactor protection system (RPS) when the reactor is critical.

Cause of the Event

The cause of the trip was determined to be animal intrusion that caused a phase to ground fault at the Z-phase surge arrestor on Transformer 1 on the 120kV switchyard. A bird that appeared to be recently electrocuted was found beneath the arrestor. The fault location was evidenced by burn marks and partial melting of the wildlife protector cover for the surge arrestor. It appears that the bird pecked at a plug in the protective cover until the fault occurred. The fault caused a transformer differential relay trip that isolated Bus 101 on the 120kV switchyard. The result of the bus isolation was a loss of power to Transformer 64 which resulted in loss of power to emergency safety feature (ESF) Buses 64B and 64C and BOP Bus 64A.

Corrective Actions

The relay that tripped to isolate the 120kV switchyard was tested and found to be operating properly. The surge arrestor and associated jumpers were replaced, and the Transformer 1 cables were inspected and megger tested satisfactory. Transformer 1 was re-energized prior to plant restart.

This event has been entered into the Fermi 2 Corrective Actions Program. The associated apparent cause evaluation is still in progress and could result in additional corrective actions.

Additional Information

A. Failed Component:
Component: Surge Arrestor
Function: Overvoltage Protection
Manufacturer: Cooper Industries
Model Number: 235-35
Failure Cause: Failure of wildlife protector

B. Previous Licensee Event Reports (LERs) on Similar Problems:

There are no other LERs on similar problems noted within the past five years